when the pupil is large, the magnitudes of the diffractive and refractive powers may reduce from the centre of the lens outwardly. Such centre to edge variation of both the diffractive power and the refractive power enables the chromatic aberration to be reduced for larger diameters while keeping the residual power of the lens constant over the whole diameter. Preferably the magnitudes of the diffractive and refractive powers reduce in a manner such that red light from a distant object remains at substantially the same focus over the whole visually used area of the lens. Taking red light (which comes from a distant object effectively at infinity) as the design wavelength, gives a relatively simple relationship between the reduction of the refractive and diffractive powers such that the diminishment of diffractive power can easily balance the diminishment of refractive power all the way across the lens. With, for example, green light as the design wavelength, the relationship is more complex and the balance across the full lens therefore more difficulat.

As will be understood by those skilled in the art, the centre to edge reduction of refractive power can be achieved in practice by a suitably aspherically curved refracting surface, and the centre to edge reduction of diffractive power can be achieved in practice by a surface relief hologram of suitably varying form. It will be understood, of course, that it is the absolute magnitudes of the diffractive and refractive powers which reduce from the centre to the edge of the lens, the diffractive power having a diminishing negative value and the refractive power having a diminishing positive value, the difference (if any) between the magnitudes which provides the residual power of the lens being the same from the centre to the edge.

I claim:

1. An ophthalmic lens comprising diffracting means providing negative diffractive power which introduces positive longitudinal chromatic aberration that adds to the natural longitudinal chromatic aberration of the eye and hence increases the range of the chromatic effect.

2. A lens according to claim **1** having diffractive power of about −3.4D dioptres where D dioptres is the extent of positive longitudinal chromatic aberration required to be introduced.

3. A lens according to claim **1** having refractive power.

4. A lens according to claim **3** having positive refractive power.

5. A lens according to claim **4** in which the refractive power is of a magnitude such as to balance the diffractive power.

6. A lens according to claim **3** in which the relative values of the diffractive and refractive powers are such as to provide the lens with an overall or residual power.

7. A lens according to claim **3** whose refractive power is provided by faces which are curved as viewed in axial section.

8. A lens according to claim **7** in which the curved faces are of spherical curvature.

9. A lens according to claim **3** in which the magnitudes of the diffractive and refractive powers reduce from the centre of the lens outwardly.

10. A lens according to claim **9** in which the magnitudes of the diffractive and refractive powers reduce in a manner such that red light from a distant object remains at substantially the same focus over the whole visually used area of the lens.

11. A lens according to claim **1** in which the diffractive power is provided by a transmission hologram.

12. A contact lens according to claim **1**.

13. A spectacle lens according to claim **1**.

14. An implant lens according to claim **1**.

15. A lens according to claim **1** having an efficiency of diffraction more than 50% at all wavelengths across the visible spectrum.

16. A lens according to claim **15** having a maximum efficiency of diffraction of more than 70%.

17. A lens according to claim **15** in which the difference between the maximum and minimum efficiencies of diffraction across the visible spectrum is less than 20%.

18. An ophthalmic lens comprising diffracting means providing negative diffractive power which introduces positive longitudinal chromatic aberration that adds to the natural longitudinal chromatic aberration of the eye and hence increases the range of the vision of the eye at any one accomodation setting by increasing the spacing between a blue object at one distance and a red object at a greater distance whose images are sharply focused on the retina.

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